A Report on the Emergency Response to Hurricane Juan

November 2003

NOVA SCOTIA

Introduction

Hurricane Juan made landfall in Nova Scotia at 12:10 am ADT on September 29, 2003. A Category 2 Hurricane, with gusts of up to 180 kilometres per hour, Juan came ashore in the Halifax area and cut a swath northward toward the Northumberland Strait and Prince Edward Island.

It left incredible destruction in its wake, toppling thousands of trees, ripping up wharfs and breakwaters, destroying barns and other farm buildings, and knocking out power to 300,000 customers of Nova Scotia Power Inc (NSPI). Devastating winds brought down 27 main transmission lines, several 120-foot transmission towers, 117 distribution feeders, and 31 major NSPI substations.

Tragically, two Nova Scotians died during this "once-in-a-Century storm." Three more people died two days after the storm made landfall—a burning candle may have been the cause of a Halifax house fire that claimed the lives of a mother and her two children. Despite this tragic toll, many emergency officials and community leaders later said the storm could have been far worse in terms of its impact on individuals. Many said the province's people were fortunate that Hurricane Juan made landfall in the wee hours of a Monday morning, at one of the quietest times in a normal Nova Scotia week—with few people at work and fewer still out on the town.

For several days before Juan came ashore—starting on September 25—the Canadian Hurricane Centre provided statements about the potential severity of the weather system. The province's Emergency Measures Organization (EMO), meanwhile, had issued a general hurricane advisory back on September 4. It cautioned that September was the prime month for hurricanes in Nova Scotia. It encouraged people to listen to weather advisories, choose an appropriate shelter inside their residences, and have an emergency kit ready at all times. It also suggested that Nova Scotians reduce hazards on their properties by trimming dead or rotten tree branches and removing dead trees entirely.

On September 28, as Juan was headed directly for the province, EMO distributed a second news release reinforcing these points. By the time Juan came ashore, emergency officials from agencies, corporations, and all three levels of government had already activated emergency preparedness protocols in preparation for the storm. Many were gathered at the headquarters of the provincial Emergency Measures Organization in Dartmouth, and some were destined to stay there for a week or more as they worked to implement emergency measures over the coming hours and days. This Joint Emergency Operations Centre (EOC) group—in co-ordination with the Halifax Regional Municipality (HRM) EOC—mounted the greatest emergency response effort in Nova Scotia since the Halifax Explosion of 1917. It involved ordinary citizens, three levels of government, non-government organizations, fishermen, farmers, homeowners, and private sector groups—in all, thousands of people.

On October 29, exactly a month after the hurricane hit the province, the joint EOC team gathered again at headquarters in Dartmouth. In attendance were representatives from EMO, several provincial government departments, the Halifax Regional Municipality, the federal government, the RCMP, the Department of National Defence, Nova Scotia Power, Aliant, and the Nova Scotia Home Builders' Association. Ernie Fage, the provincial minister responsible for EMO, was also at the meeting.

The purpose of this report is to describe the overall effort by summarizing the October 29 debriefing session, focusing on two key topics: the breadth, scope, strengths and weaknesses of the emergency response effort; and the lessons learned as a result of that effort—lessons that can help Nova Scotia's various emergency response organizations improve their protocols and procedures. In the end, the goal of the team that assembled on October 29 is to improve the province's overall emergency response capabilities.

The Emergency Response

EMO Minister Ernie Fage gave voice to a common view around the table when he said that no one could have predicted the force or the devastating effects of Hurricane Juan. He praised the work of the emergency responders, saying their coordinated efforts helped foster "stability and optimism in the population." The minister noted that there was little, if any, notable civic unrest in the aftermath of Hurricane Juan. He also praised the professional, ongoing communications effort that resulted, for the most part, in the dissemination of accurate information to the public in a timely manner. "Everybody managed for the common good," he said.

For many Nova Scotians, Hurricane Juan was about fallen trees, blocked roads, and power outages. But the minister's remarks, and other presentations during the October 29 debriefing, made it clear that both the responses to and the effects of the hurricane were widespread, diverse, and sometimes surprising.

One urgent priority, in the wake of Juan, was meeting the needs of the most vulnerable. In this regard, the Nova Scotia Red Cross mobilized 200 volunteers to assist approximately 30,000 people. The agency provided 5,000 meals, distributed 40,000 bottles of juice and water, and conducted 70 food drops in 45 different locations from HRM through to the Truro corridor.

The Red Cross effort, managed by Community Services Nova Scotia (CSNS), was augmented by the efforts of that Department's Emergency Social Services (ESS) group. One of the first challenges facing ESS was finding shelter for people left homeless by the hurricane, including 251 residents of an apartment building on Windmill Road in Dartmouth.

While officials set up and equipped four emergency shelters, others took up the task of providing food, financial, and other aid to people left stranded by the storm. About $780,000 in food vouchers was distributed to people on social assistance and to senior citizens in need. Travel arrangements were made for about 60 people requiring medical assistance, and close to $100,000 in emergency home repair assistance was directed toward low-income families and people on social assistance. Emergency food aid was also organized and delivered by the private sector. The Nova Scotia Homebuilders' Association, for instance, quickly canvassed its members and raised $25,000 for food banks in the HRM area.

Over at the Department of Agriculture and Fisheries (DAF) in Halifax, food issues were also top of mind and at the top of the agenda. With thousands of people left with thawing food in freezers and spoiling food in refrigerators, the department quickly set up a food safety line. The response was overwhelming—1,700 calls flooded the line, placing extraordinary demands on staff. The department used its existing food safety information and worked with staff from Communications Nova Scotia to develop what one official called "proactive and progressive" messages. "I anticipated an increase in food-borne illness ... that did not occur," he said.

DAF, meanwhile, also met its mandate to oversee and manage the emergency response to Hurricane Juan inside the fishing and agriculture industries. It turns out that both of those sectors did a good job of looking after their own. The fishing industry, well aware of its need to take weather warnings seriously, battened down the hatches and was generally "very well prepared." And while there was extensive infrastructure damage to wharves and other facilities during the storm, "the fact there was no loss of life is significant."

While fishermen did a first-rate job of preparing for the storm, farmers—particularly dairy farmers—had to act in a hurry to respond to it. Members of the farming community provided each other "with a lot of mutual support," a department official said. This took the form of moving dairy cattle to farms that still had power and delivering generators to sustain milking operations. Despite these efforts, he said, a "significant" quantity of milk still had to be dumped.

Health care providers, meanwhile, faced major challenges in the wake of the hurricane. Transportation issues complicated the work of Emergency Health Services (EHS) and the provision of health care to home-based patients. In addition, the roof literally blew off one wing of the Victoria General Hospital (a campus of the Queen Elizabeth II Health Sciences Centre). Hurricane Juan left the entire health care system, in affected areas, with a backlog of hundreds of surgeries and clinic appointments. Public Health Services closely monitored food and water safety, and was prepared to deal with the spread of communicable diseases in the wake of the storm. In addition, Public Health officials found themselves offering support—moral and otherwise—to family doctors whose supplies of vaccines and other products were threatened by the loss of power and refrigeration capacity.

Other departments of government felt the impact of Hurricane Juan—sometimes in surprising ways. With some courts closed, and some judges not sitting, the Department of Justice realized it might have to cope with time-outs on remand orders for criminals in custody. Keeping people in jail beyond the time period of a remand order could be unlawful, but setting some criminals free is not an attractive option in itself. This issue may seem "minor," one official said, but to victims of crime "these are not minor things."

The Department of Education recognized that schools can serve as important evacuation centres or community centres at a time of emergency. But most schools do not have their own backup power supplies, and one official suggested this issue should be addressed. "Power generation is a very important component in an emergency," he said. At the Department of Environment and Labour, however, safety was the first priority when it came to restoring power. Inspectors worked overtime to ensure electrical grid connections were "expedited without compromising safety."

The massive need to restore power and highway links put enormous pressure on the Department of Transport and Public Works, and on Nova Scotia Power to gets its full grid up and running. All major roads under the department's direct jurisdiction were "mostly cleared and clearly passable" by October 3, four days after the storm. But at the time of the October 29 debriefing, debris was still being cleared from some rural roads in HRM. A deadline of October 31 was set for completing that task.

NSPI, meanwhile, was left to deal with the crippling blow dealt to its transmission and distribution systems. As one company official put it, the hurricane tracked along the "backbone" of NSPI's transmission system from Halifax to Truro. In all, Juan interrupted service to 70 per cent of the utility's customers.

With 300,000 customers out of power throughout HRM and the northeastern part of the province, NSPI put together a massive effort to restore power. Three hundred field crews were assembled from Nova Scotia, New Brunswick, and Maine, and their work was supported by NSPI staff, EMO, municipal staff, and 2,000 members of the armed forces.

During the recovery effort itself, NSPI's priorities included addressing safety hazards and restoring power to crucial customers—including health institutions—identified by EMO and NSPI. The utility reported that it had restored power to 50 per cent of customers by noon on Tuesday. By Thursday 85 per cent of the customers who lost power were back on the grid, and by Friday, 95 per cent were restored. The last customers were restored after 14 days without power—on Sunday, October 12.

Despite this recovery effort, an official from Canada's Department of National Defence (DND) said neither HRM nor NSPI was initially well-prepared to take advantage of the soldiers and sailors that DND provided at the request of those two agencies. DND teams were tasked with two mandates: helping NSPI restore power to its grid and helping facilitate the reopening of traffic lanes in HRM.

However, during the first two days after the hurricane—September 29 and September 30—"we found many of our teams standing by in various parts of the city without direction and without guidance." With 1,133 ready to hit the streets Tuesday, DND "faced a problem where we had the manpower and it was not used very efficiently at all." DND says this situation was resolved at a Tuesday evening meeting involving DND, HRM, and NSPI. From that point on, the department's work teams were dispatched alongside HRM and NSPI teams on a 24-hour basis. "We switched our effort to 24-7 to match the NSPI cycle and the HRM cycle ... each of those teams was linked and it went very well from that point on."

DND also said the overall recovery effort was hampered by a lack of "situational awareness"—or by a failure to communicate with the EMO group just how much had been accomplished in the cleanup and where the hardest hit areas were. "Situational awareness is the basis for any planning like this," the official said. "It is just a matter of making this happen around the EMO group."

Conclusion: Lessons Learned

At the end of the debriefing session on October 29, Mike Lester—the head of Nova Scotia's Emergency Measures Organization (EMO)—thanked the people around the table for their contributions to a job that he said was "extremely well" done. Mr. Lester noted that EMO had received praise from colleagues nationally and internationally, and that about 90 per cent of e-mails from the public were congratulatory rather than critical. This was a sentiment echoed throughout the day. One government official—whose colleagues staffed a help line in the wake of the storm—said they had never heard the words "thank you" spoken so often in their careers.

Still, the mood in the room was sober rather than celebratory. Mr. Lester said he was thankful the hurricane didn't come ashore in Yarmouth and travel up the centre of the province, and thankful that Juan was only a Category 2 Hurricane. "It wasn't a [category] 4 or 5 [hurricane] and I don't want to see one." Other attendees attributed the limited number of injuries and fatalities to "good luck, good timing, and the good sense of Nova Scotians." Many people suggested Hurricane Juan was a "hundred-year storm" in name only—that with a changing global climate and warming ocean currents, a repeat was possible, if not likely. An official from the Department of National Defence put it most directly: "During the period we were working here, we were tracking another hurricane ... Only a fool would act on the supposition that it would not happen again."

With this prospect in mind, most participants were eager to explain lessons learned and make recommendations for improving Halifax's emergency response protocols and practices. Dozens of recommendations were made, but they can be summarized under three headings:

- *improved use of resources and people*
- *improved operational protocols*
- *improved communications*

This report will conclude by summarizing the major recommendations. The following lists are by no means exhaustive. They are intended to capture the key themes from the October 29 debriefing and provide general guidelines for improving Nova Scotia's emergency preparedness.

Improved Use of Resources and People

- Emergency training opportunities should be more widely available to responders in various fields, including operations and communications.

- Emergency crisis simulations should be used to prepare emergency personnel for the "real thing." This was suggested with particular reference to the three agencies with primary responsibilities for health care in Nova Scotia—the provincial Department of Health, Public Health Services, and Emergency Health Services.

- Identify, list, and continuously update contact and resource/asset lists for deployment in an emergency. Resources that should be identified include generators and emergency vehicles. Emergency personnel lists should include additional human resources, including department of justice sheriffs who have emergency vehicles, first aid training, and experience in transporting people.

- Trained backup personnel should be available to relieve first-line responders in an extended emergency. At least two presenters said staff members were basically burned out in the first week of the emergency response effort.

Improved Operational Protocols

- Improve "situational awareness" practices inside Nova Scotia's Joint Emergency Operations Centre. The EOC should be equipped to better understand where the crisis points are, what has been accomplished in the field, and where resources should next be assigned on a priority basis.

- Establish written protocols for liaison between the Joint EOC and the HRM EOC. While it was agreed that communications worked well between the two operations centres, this was a function of the experience of, and relationships between, the people involved. Written policies and protocols are required to guide the operational response no matter who is leading it.

- Backup or contingency operations centres should be identified for key groups, departments, and agencies, in case primary sites are inoperable in an emergency.

- The Emergency Operations Centre itself should be well enough equipped and spacious enough to accommodate the extra people—including communications workers—who are deployed in a major emergency. Particular mention was made of remote access to computer data and systems.

Improved Communications

- Further develop relationships between agencies involved in emergency response. This will encourage information sharing during emergencies. It will also help establish a communications network with up-to-date contact lists.

- NSPI and other agencies directly involved in emergency response operations should design automated telephone answering systems to provide callers with estimated hold times. That way, callers would be able "to get on with their lives"—as one participant said—when wait times are excessive.

- Develop good working relationships between Communications Nova Scotia and media organizations to facilitate communications during an emergency.

- Continue to prepare general emergency information and safety tips so that it is readily available and user-friendly. It was noted that some existing brochures are long and difficult to read. These could be simplified and prepared as fact sheets for ready use in an emergency.

- Joint public messaging should be further developed and delivered through a streamlined system that efficiently provides consistent, up-to-date information to the public while leaving 911 open as a true emergency line.

NOVA SCOTIA

A Report on the Emergency Response to Hurricane Juan